

## REMARKS

The Office action mailed April 4, 2006, has been received and its contents carefully noted. The pending claims, claims 1-3, are rejected. By this Response, claim 1 has been amended and claim 4 has been canceled as being redundant to claim 1 as amended. Support may be found in the specification and the claims as originally filed. No statutory new matter has been added. Therefore, reconsideration and entry of the claims as amended are respectfully requested.

### Double Patenting Rejection

The Examiner provisionally rejected claims 1-3 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of copending Application No. 10/820,853. Specifically, the Examiner deemed that it would have been obvious to one of ordinary skill in the art at the time of the invention that a machine for processing a plate like workpiece with electrodes having the same structure would be capable of processing a flip chip.

Applicants respectfully submit that a Terminal Disclaimer submitted herewith obviates this provisional rejection. Therefore, the double patenting rejection should properly be withdrawn.

### Rejection under 35 U.S.C. 102(b)

The Examiner rejected claims 1-3 under 35 U.S.C. 102(b) as being anticipated by Makhijani (US 4,321,738). Specifically, the Examiner deemed that Makhijani teaches a flip chip bonder with a chuck table which can be moved, take in and take out areas, a cutting area with a mechanical cutting tool which cuts the electrodes to uniform heights, and a chip conveying means.

Applicants respectfully submit that a characteristic feature of the present invention is that the flip chip bonder is provided with "a mechanical cutting means having a cutting tool with a cutting blade for cutting a plurality of electrodes projecting from the front surface of the

semiconductor chip to make the electrodes uniform in length”. Since the electrodes are cut away with a cutting tool with a cutting blade, the plurality of electrodes can be made uniform in height without generating burrs.

Makhijani discloses an apparatus having a brush 24 for rework dressing of various solder columns 12 projecting from the upper surface of the substrate 11. This brush 24, however, has a multiplicity of bristles 26 and hence, differs from the cutting tool with a cutting blade of the present invention.

The dressing by the multiplicity of bristles 26 does not act to cut away electrode portions like a cutting tool with a cutting blade. With bristles, its mode of processing is similar to grinding by a grinding tool. Therefore, Applicants advise, when electrodes made of a sticky metal such as gold are ground, burrs are produced, thereby causing problems such as short circuits between adjacent electrodes. See page 2, lines 1-4 of Applicants’ specification.

Since Makhijani does not disclose use of the cutting tool with a cutting blade as an essential part of a flip chip bonder, Makhijani does not disclose the claimed invention. Therefore, the rejection under 35 U.S.C. 102(b) should properly be withdrawn.

#### **Rejection under 35 U.S.C. 103(a)**

The Examiner rejected claims 2 under 35 U.S.C. 103(a) as being unpatentable over Makhijani in view of Hernandez et al. (US 5,263,620). Specifically, the Examiner deemed that fluid jets are an obvious variation of the vacuum device to facilitate removal of debris.

As previously explained, Makhijani does not disclose use of the cutting tool with a cutting blade as an essential part of the flip chip bonder. Hernandez et al. does not alleviate the deficiencies of Makhijani. Therefore, the combination of Makhijani and Hernandez et al. does not result in the claimed invention. Thus, the rejection under 35 U.S.C. 103(a) should properly be withdrawn.

**Request for Interview**

The Examiner offered that she would initiate a further telephone interview should there be any remaining issues.

### CONCLUSION

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,  
SMITH, GAMBRELL & RUSSELL, LLP



Michael A. Makuch  
Reg. No. 32,263

Date: July 17, 2006

1850 M Street, NW, #800  
Washington, D.C. 20036  
Telephone: (202) 263-4300  
Facsimile: (202) 263-4329